

## An Implementation of a Turbo Decoder

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## **ABSTRACT OF THE DISCLOSURE**

5 A method for computing the function  $\log(e^{x_1} + e^{x_2})$  or  $\ln(e^{x_1} + e^{x_2})$  for a  
first argument value  $x_1$  and a second argument value  $x_2$  includes generating a table  
having a first data field and a second data field. The first data field includes N  
entries of table index values selected from a range of  $|x_1-x_2|$  argument values and  
scaled by a scaling factor. The second data field includes N entries of computed  
10 table values computed based on the equation  $\log(1 + e^{-|x_1-x_2|})$  or  $\ln(1 + e^{-|x_1-x_2|})$   
for each of the  $|x_1-x_2|$  argument values selected for the table index values. The  
computed table values are also scaled by the same scaling factor.